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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Josef Deuringer

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BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60610

EXAMINER

CHEN, XIAOLIANG

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/588,556	Applicant(s) DEURINGER ET AL.	
	Examiner XIAOLIANG CHEN	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4,5,7-15,18,19 and 21-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,5,7-15,18,19 and 21-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08-04-06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Preliminary Amendment

1. Claims 1, 4, 5, 7-15, 18, 19 and 21-28 are amended.
2. Claims 2, 3, 6, 16, 17 and 20 are canceled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
5. Claims 1, 4, 5, 7-13, 15, 18, 19 and 21-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlotterer et al. (US5844781) in view of Powell (US6931723).

Re Claim 1, Schlotterer et al. show and disclose

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A housing (19, fig. 2) having a liquid-tight (water tight [col. 2, line 62]) electric bushing (17, fig. 2) comprising:

an opening in the housing (21, fig. 2): and

a closure for the opening (The printed circuit board 23 serves as a cover for the opening 21 in the housing [col. 3, line 24]), the closure comprising a printed circuit board (23, fig. 2) mounted to the housing and having at least first and second layers (fig. 2); the first layer is a top side of the printed circuit board and spans the opening (fig. 2),

wherein a first contact element (47, fig. 2) is disposed on the top side and in a bore (51, fig. 3),

Schlotterer et al. does not disclose

the bore through the first layer that extends to at least the second layer, the second layer is a conductor track in the interior of the printed circuit board.

Powell teaches a device wherein

the bore through the first layer (dielectric layer 1 [col. 6, line 41], fig. 7) that extends to at least the second layer (5, fig. 7), the second layer is a conductor track (electrically conductive layer 5 [col. 12, line 30]) in the interior of the printed circuit board (fig. 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the conductive layer of the multilayer circuit board as taught by Powell in the electronic device of Schlotterer

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et al., in order to pass the electrical signals through the circuit board for the electronic device.

Re Claim 4, Schlotterer et al. show and disclose

The housing as defined by claim 1,

wherein the first layer is an electrical insulation material (dielectric layer, see claim 1 above).

Re Claim 5, Schlotterer et al. show and disclose

The housing as defined by claim 1,

wherein the first contact element is coupled to a second contact element (49, fig. 2) via the second layer (fig 10, Powell, see claim 1 above).

Re Claim 7, Schlotterer et al. show and disclose

The housing as defined by claim 5,

wherein the second contact element is on an underside that is opposite the top side (fig. 2).

Re Claim 8, Schlotterer et al. show and disclose

The housing as defined by claim 5,

wherein the second contact element extends to an outside an edge of the printed circuit board (fig. 2).

Re Claim 9, Schlotterer et al. show and disclose

The housing as defined by claim 1,

Schlotterer et al. does not disclose

wherein the printed circuit board is flexible.

Powell teaches a device wherein

wherein the printed circuit board is flexible (flexible circuit [col. 4, line 51]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the flexible circuit board as taught by Powell in the electronic device of Schlotterer et al., in order to seal the opening of the electronic device more tightly.

Re Claim 10, Schlotterer et al. show and disclose

The housing as defined by claim 1, wherein the printed circuit board comprises a plurality of second layers, located one above the other (fig. 10, Powell, see claim 1 above).

Re Claim 11, Schlotterer et al. show and disclose

The housing as defined by claim 5,

wherein the first contact element and the second contact element are coupled via a plurality of conductor tracks, which are located one above the other and are electrically coupled (fig. 10, Powell, see claim 1 above).

Re Claim 12, Schlotterer et al. show and disclose

The housing as defined by claim 1,

wherein a seal (gasket 43, fig. 2) is disposed between the printed circuit board and the housing.

Re Claim 13, Schlotterer et al. show and disclose

The housing as defined by claim 12,

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wherein a pressure plate (the plate under circuit board 23 and above 39, fig. 2) contacts the underside of the printed circuit board and presses the printed circuit board against the seal (fig. 2).

Re Claim 15, Schlotterer et al. show and disclose

A method of using a printed circuit board (23, fig. 2) to close an opening (21, fig. 2) provided in a housing (19, fig. 2) and as an electric bushing (17, fig. 2, The printed circuit board 23 serves as a cover for the opening 21 in the housing [col. 3, line 24]) comprising:

mounting the printed circuit board (fig. 2) comprising a first layer (top, fig. 2) on the housing, wherein the first layer spans the opening and is the top side of the printed circuit board (fig. 2), and

disposing a first contact element (47, fig. 2) on the top side and through a bore (51, fig. 3) in the top side,

Schlotterer et al. does not disclose

wherein the bore extends at least as far as a second layer formed in the printed circuit board as a conductor track.

Powell teaches a device wherein

the bore through the first layer (dielectric layer 1 [col. 6, line 41], fig. 7) that extends to at least the second layer (5, fig. 7), the second layer is a conductor track (electrically conductive layer 5 [col. 12, line 30]) in the interior of the printed circuit board (fig. 10).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the conductive layer of the multilayer circuit board as taught by Powell in the electronic device of Schlotterer et al., in order to pass the electrical signals through the circuit board for the electronic device.

Re Claim 18, Schlotterer et al. show and disclose

The method as defined by claim 15, wherein the method further includes
producing the first layer from an electrical insulation material (dielectric layer, see claim 15 above).

Re Claim 19, Schlotterer et al. show and disclose

The method as defined by claim 15, wherein the method further comprises
connecting the first contact element to a second contact element (49, fig. 2) via the second layer (fig 10, Powell, see claim 15 above).

Re Claim 21, Schlotterer et al. show and disclose

The method as defined by claim 19, wherein the method further comprises
disposing the second contact element on an underside that is opposite the top side (fig. 2).

Re Claim 22, Schlotterer et al. show and disclose

The method as defined by claim 19, wherein the method further comprises
extending the second contact element to an outside edge of the printed circuit board (fig. 2).

Re Claim 23, Schlotterer et al. show and disclose

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The method as defined by claim 15, wherein the method further comprises
Schlotterer et al. does not disclose

using the printed circuit board is flexible.

Powell teaches a device wherein

using the printed circuit board is flexible (flexible circuit [col. 4, line 51]).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the flexible circuit board as taught by Powell in the electronic device of Schlotterer et al., in order to seal the opening of the electronic device more tightly.

Re Claim 24, Schlotterer et al. show and disclose

The method as defined by claim 15, wherein the method comprises

using the printed circuit board that has a plurality of second layers located one above the other (fig. 10, Powell, see claim 15 above).

Re Claim 25, Schlotterer et al. show and disclose

The method as defined by claim 24, wherein the first contact element and a second contact element (49, fig. 2) are connected via a plurality of conductor tracks in alignment with each other (fig. 10, Powell, see claim 15 above).

Re Claim 26, Schlotterer et al. show and disclose

The method as defined by claim 15, wherein the method comprises

disposing a seal (gasket 43, fig. 2) between the printed circuit board and the housing.

Re Claim 27, Schlotterer et al. show and disclose

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The method as defined by claim 26, wherein the method comprises

using a pressure plate (the plate under circuit board 23 and above 39, fig. 2) that contacts the underside of the printed circuit board and presses the printed circuit board against the seal (fig. 2).

6. Claims 14 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlotterer et al. in view of Powell as applied to claims 1 and 15 above, and further in view of Kaczmarek et al. (US6542577).

Re Claims 14 and 28, Schlotterer et al. and Powell disclose

According to claim 1 and 15 respectively,

Schlotterer et al. and Powell do not disclose

the housing comprises an X-ray tube.

Kaczmarek et al. teaches a device wherein

the housing comprises an X-ray tube (14, fig. 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the X-ray tube as taught by Kaczmarek et al. in the electronic device of Schlotterer et al., in order to seal the X-ray tube in the housing and provide a seal which resists leakage of cooling oil from the housing. (Schlotterer et al., [Abstract]).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US-6305975 US-6183290 US-6640645 US-7164197 US-7063511 US-3879836 US-5987996 US-6614108.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAOLIANG CHEN whose telephone number is (571)272-9079. The examiner can normally be reached on 7:00-5:00 (EST), Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800, ext 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dean A. Reichard/

Xiaoliang Chen

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Supervisory Patent Examiner, Art Unit 2841

Examiner
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